

## **REMARKS<sup>1</sup>**

In the outstanding final Office Action, the Examiner rejected claims 1, 7, and 9 under 35 U.S.C. § 102(e) as being anticipated by U.S. Publication No. US 2003/0044118 A1 to Zhou et al. (“Zhou”); rejected claims 3 and 8 under 35 U.S.C. § 103(a) as being unpatentable over Zhou as applied to claims 1, 7, and 9, and further in view of Hubner et al., “Planar Er- and Yb- Doped Amplifiers and Lasers”), (“Hubner”); rejected claim 4 under 35 U.S.C. § 103(a) as being unpatentable over Zhou as applied to claims 1, 7, and 9, and further in view of U.S. Patent No. 6,088,492 to Kaneko et al. (“Kaneko”); rejected claim 5 under 35 U.S.C. § 103(a) as being unpatentable over Zhou in view of Beach, Raymond J., “Theory and optimization of lens ducts,” Applied Optics, Vol. 35, No. 12, pp. 2005-2015 (April 20, 1999) (“Beach”); rejected claims 6, 10, 12, and 14 under 35 U.S.C. § 103(a) as being unpatentable over Zhou as applied to claims 1, 7, and 9, and further in view of U.S. Patent No. 6,760,520 to Medin et al., (“Medin”); and rejected claims 11 and 13 under 35 U.S.C. § 103(a) as being unpatentable over Zhou as applied to claims 1, 7, and 9, and further in view of U.S. Patent Application Publication No. US 2003/0185266 to Henrichs (“Henrichs”).

By this amendment, Applicant proposes amending claim 1 for clarity only. Claims 1, and 3-20 remain pending in this application, with claims 1, and 3-14 currently presented for examination.

### **I. Information Disclosure Statement**

Applicants note the Examiner’s acknowledgement of the Supplemental Information Disclosure Statement (“Supplemental IDS”). Applicants’ remind the Examiner of their duty to

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<sup>1</sup> The Office Action contains a number of statements reflecting characterizations of the related art and the claims. Regardless of whether any such statement is identified herein, Applicant declines to automatically subscribe to any statement of characterization in the Office Action.

disclosure any art that is relevant to the above-referenced application. To this effect, the MPEP 2001.06(b) states:

The individuals covered by 37 CFR 1.56 have a duty to bring to the attention of the examiner, or other Office official involved with the examination of a particular application, information within their knowledge as to other copending United States applications which are "material to patentability" of the application in question. As set forth by the court in *Armour & Co. v. Swift & Co.*, 466 F.2d 767, 779, 175 USPQ 70, 79 (7th Cir. 1972):

Accordingly, the individuals covered by 37 CFR 1.56 cannot assume that the examiner of a particular application is necessarily aware of other applications which are "material to patentability" of the application in question, but must instead bring such other applications to the attention of the examiner. *See Dayco Prod., Inc. v. Total Containment, Inc.*, 329 F.3d 1358, 1365-69, 66 USPQ2d 1801, 1806-08 (Fed. Cir. 2003). For example, if a particular inventor has different applications pending in which similar subject matter but patentably indistinct claims are present that fact must be disclosed to the examiner of each of the involved applications. Similarly, the prior art references from one application must be made of record in another subsequent application if such prior art references are "material to patentability" of the subsequent application. *See Dayco Prod.*, 329 F.3d at 1369, 66 USPQ2d at 1808.

By acknowledging the Supplemental IDS and considering the references listed on the PTO/SB/08 forms submitted along with the Supplemental IDS, the Examiner has assisted Applicant in fulfilling their duty to disclose information in conjunction with the guidelines noted above. Applicant duly appreciates the Examiner's assistance in this matter.

## **II. Rejections under 35 U.S.C. § 102(e)**

Applicant respectfully traverses the rejection of claims 1, 7, and 9 under 35 U.S.C. § 102(e). In order to properly anticipate Applicant's claimed invention under 35 U.S.C. § 102, each and every element of the claim in issue must be found, "either expressly or inherently described, in a single prior art reference." Verdegaal Bros. v. Union Oil Co. of California, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). Moreover, "[t]he identical invention

must be shown in as complete detail as is contained in the . . . claim. Richardson v. Suzuki Motor Co., 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).” See MPEP § 2131, 8th Ed. (Rev. 5), August, 2006. Zhou cannot anticipate claims 1, 7, and 9 because that reference fails to teach each and every element recited in claims 1, 7, and 9.

For example, Zhou fails to teach a combination including “at least one amorphous film-based slab waveguide . . . formed on the buffer layer.” The Examiner asserts that Zhou teaches “an optical waveguide shown best in figure 13,” and that the waveguide is an “amorphous film based slab waveguide.” Office Action, page 3.

Contrary to the Examiner’s assertion, however, Zhou teaches:

Wave guide Core WC 1345 is made up of silicon (Si) with a refractive index of  $n_{WC}=3.5$ , the Upper Waveguide Cladding 1350 is made up of silica-titania ( $SiO_2-TiO_2$ ) material mixture with a mixture composition to achieve a refractive index of  $n_{UWCL}=1.7$  or alternatively  $Si_3N_4$  with a refractive index of about 1.7 . . . Lower Waveguide Cladding 1310 is made up of silicon dioxide ( $SiO_2$ ) with a refractive index of  $n_{LWCL}=1.5$ . Zhou, paragraph [0188].

Zhou, however, does not teach that the silicon, silica-titania, the silicon dioxide, or any of the materials of the waveguide are “amorphous film-based.” Accordingly, Zhou fails to teach a combination including “at least one amorphous film-based slab waveguide . . . formed on the buffer layer,” as recited in claim 1. Claim 1 is thus allowable over Zhou, and claims 7 and 9 are also allowable at least because of their dependence from allowable claim 1. Applicant therefore respectfully requests that the Examiner withdraw the rejection of claims 1, 7, and 9 under 35 U.S.C. § 102(e).

### III. Rejections under 35 U.S.C. § 103(a)

Applicant respectfully traverses the rejection of claims 3-6, 8, and 10-14 under 35 U.S.C. § 103(a) because a *prima facie* case of obviousness cannot be established. To establish a *prima*

*facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. MPEP § 2143, 8th Ed. (Rev. 5), August, 2006.

A *prima facie* case of obviousness cannot be established for at least the reason that the references, whether taken alone or in combination, fail to teach or suggest each and every element required by claims 3-6, 8, and 10-14.

A. Claims 3 and 8

Claims 3 and 8 depend from claim 1, and thus require all of the elements recited in claim 1. As discussed above, Zhou fails to teach or suggest a combination including at least “at least one amorphous film-based slab waveguide ... formed on the buffer layer,” as recited in claim 1, and required by claims 3 and 8.

The Examiner asserts that Hübner “teach an optical waveguide device shown in figure 2a with a slab waveguide that is folded in the plane of the slab.” Office Action, page 4. Such alleged teachings, even if combinable with Zhou fail to cure the above-noted deficiency of Zhou. That is, Hübner also fails to teach or suggest “at least one amorphous film-based slab waveguide ... formed on the buffer layer,” as recited in claim 1 and required by claims 3 and 8.

Because Zhou and Hübner fail to teach or suggest every element required by claims 3 and 8, a *prima facie* case of obviousness has not been established. Accordingly, Applicant

respectfully requests that the Examiner withdraw the rejection of claims 3 and 8 under 35 U.S.C. § 103(a).

B. Claim 4

Claim 4 depends from claim 1, and thus requires all of the elements recited in claim 1. As discussed above, Zhou fails to teach or suggest a combination including at least “at least one amorphous film-based slab waveguide ... formed on the buffer layer,” as recited in claim 1, and required by claim 4.

The Examiner asserts that Kaneko “teach a smooth optical waveguide that is coupled to a laser diode.” Office Action, page 5. Such alleged teachings, even if combinable with Zhou fail to cure the above-noted deficiency of Zhou. That is, Kaneko also fails to teach or suggest “at least one amorphous film-based slab waveguide ... formed on the buffer layer,” as recited in claim 1 and required by claim 4.

Because Zhou and Kaneko fail to teach or suggest every element required by claim 4, a *prima facie* case of obviousness has not been established. Accordingly, Applicant respectfully requests that the Examiner withdraw the rejection of claim 4 under 35 U.S.C. § 103(a).

C. Claim 5

Claim 5 depends from claim 1, and thus requires all of the elements recited in claim 1. As discussed above, Zhou fails to teach or suggest a combination including at least “at least one amorphous film-based slab waveguide ... formed on the buffer layer,” as recited in claim 1, and required by claim 5.

The Examiner asserts that Beach “teaches a waveguide device with a lens duct to couple light from a diode into a waveguide.” Office Action, page 5. Such alleged teachings, even if combinable with Zhou fail to cure the above-noted deficiency of Zhou. That is, Beach also fails

to teach or suggest “at least one amorphous film-based slab waveguide ... formed on the buffer layer,” as recited in claim 1 and required by claim 5.

Because Zhou and Beach fail to teach or suggest every element required by claim 5, a *prima facie* case of obviousness has not been established. Accordingly, Applicant respectfully requests that the Examiner withdraw the rejection of claim 5 under 35 U.S.C. § 103(a).

D. Claims 6, 10, 12, and 14

Claims 6, 10, 12, and 14 depend from claim 1, and thus require all of the elements recited in claim 1. As discussed above, Zhou fails to teach or suggest a combination including at least “at least one amorphous film-based slab waveguide ... formed on the buffer layer,” as recited in claim 1, and required by claims 6, 10, 12, and 14.

The Examiner asserts that Medin “teach a mode size converter ... that the mode size converter can be used in an array with an array of laser diodes and waveguides.” Office Action, page 6. Such alleged teachings, even if combinable with Zhou fail to cure the above-noted deficiency of Zhou. That is, Medin also fails to teach or suggest “at least one amorphous film-based slab waveguide ... formed on the buffer layer,” as recited in claim 1 and required by claims 6, 10, 12, and 14

Because Zhou and Medin fail to teach or suggest every element required by claims 6, 10, 12, and 14, a *prima facie* case of obviousness has not been established. Accordingly, Applicant respectfully requests that the Examiner withdraw the rejection of claims 6, 10, 12, and 14 under 35 U.S.C. § 103(a).

E. Claims 11 and 13

Claims 11 and 13 depend from claim 1, and thus require all of the elements recited in claim 1. As discussed above, Zhou fails to teach or suggest a combination including at least “at

least one amorphous film-based slab waveguide ... formed on the buffer layer,” as recited in claim 1, and required by claims 11 and 13.

The Examiner asserts that Henrichs “shows that a VCSEL and a diode are equivalent structures in the art and that they are both used in optical pumping.” Office Action, page 7. Such alleged teachings, even if combinable with Zhou fail to cure the above-noted deficiency of Zhou. That is, Henrichs also fails to teach or suggest “at least one amorphous film-based slab waveguide ... formed on the buffer layer,” as recited in claim 1 and required by claims 11 and 13.

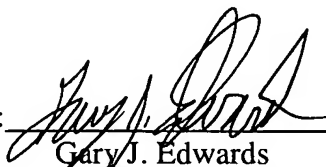
Because Zhou and Henrichs fail to teach or suggest every element required by claims 11 and 13, a *prima facie* case of obviousness has not been established. Accordingly, Applicant respectfully requests that the Examiner withdraw the rejection of claims 11 and 13 under 35 U.S.C. § 103(a).

This Amendment After Final does not include any substantive claim amendment which raises any new issues requiring a new search. Entry of this Amendment After Final, and a timely allowance of the pending claims is earnestly requested.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,  
FINNEGAN, HENDERSON, FARABOW,  
GARRETT & DUNNER, L.L.P.

Dated: February 20, 2007

By:   
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